DRAFT – Water Quality and Quantity Meeting Minutes

October 18, 2010

Time: 10:00 AM – 1:00 PM

3rd Floor Large Conference Room, 401 E. State Street, Trenton NJ

Attendees: David A. Vaccari, Chair, Thomas W. Amidon, Kirk Barrett, Brian T. Buckley, James Cromartie, Josh T. Kohut, Andrew Michalski, Orren D. Schneider

NJDEP Staff: Judy Louis, Jeff Hoffman, Barbara Hirst, Tom Atherholt, Tom Belton, Leslie McGeorge, Marzooq Alebas, Ray Cantor, Stan Cach, Dan Zeppenfeld, Merken Belford

Dr. Vaccari discussed procedure. Small groups will be tasked with working on each charge question. The group will be responsible for writing up a report which the whole committee will evaluate and approve. The report will then be forwarded to the main SAB.

Issue 1 – Nitrate Dilution Model

Jeff Hoffman, New Jersey Geological Survey, discussed the nitrogen dilution model and its use as a planning tool. The model was designed to determine loading from multiple septic tanks to the groundwater downstream.

Basically:

$$H \cdot m = A_p \cdot R \cdot C_q$$

Where:

R = No. of Residents/house (typically assumed to be 4)
m = Per capita load (typically assumed to be 10 lb/person/yr)
R = Recharge (inches per year, drought conditions)
A_p =Acreage that is permeable (typically 0.97 · total area)
C_q is the concentration of nitrate in the groundwater (e.g. 2 mg/L)

A typical restriction resulting from this model is a minimum lot size of 8.6 acres. Jeff mentioned that nitrate is a surrogate for everything else that is discharged into a septic system, such as pharmaceuticals, household chemicals and other emerging pollutants. Nitrate is easily measured, does not bind with the soil particles, and in aerobic regions will remain as nitrate.

A discussion was led by Jeff Hoffman and Barbara Hirst, Water Quality and Standards, followed. The six charge questions were modified to five questions and assignments were made as follows:

Charge Question 1 - *Please comment on the appropriateness of the assumptions made by the nitrate dilution models. Are these assumptions appropriate at the scale of at which the model results are used to make land-use planning decisions? Are there sources other than septic systems (associated with development, e.g. landscaping) that should be included in the model?*

Andrew Michalski (Contact) – Jamie Cromartie

(This group will also look at other sources of nitrates that are associated with development (e.g. landscape treatment) and comment on whether they should be included in the model in the future)

Charge Question 2 - *Please comment on the appropriateness of the assumption that nitrate in groundwater is unaffected as it moves from groundwater through the hyporheic zone into surface water. What does the literature suggest is an appropriate nitrate standard to protect aquatic ecosystems. Does this vary spatially or by receptor?*

Tom Amidon (Contact), Orren D. Schneider, Xiaoguang Meng

Charge Question 3 and 4 - *What are the appropriate scales for applying the results of the nitrate dilution model?*

a. *Near field – discharge from septic system to nearby well*
b. *Medium field – discharge from septic system to nearby stream*
c. *Far field – discharge from septic system to the bay or ocean*

Kirk Barrett (Contact), Josh Kohut

Charge Question 5 - *Should the standard take into account prior land use and other nitrate sources?*

The Committee felt that this was a policy issue.

Charge Question 6 - *Please comment on if it is appropriate to use elevated nitrate concentrations as a surrogate for other excessive anthropogenic impacts on water quality and the ecosystem.*

Brian Buckley (Contact), Keith Cooper, Orren Schneider

It was decided that a draft write-up for each of the charge questions would be completed by December 1st.

Assignment for NJDEP – An attempt will be made to compare data from the Private Well Testing Program to available surface water data. - Judy Louis and Jeff Hoffman.

Issue 2 - Nutrient Criteria Development

This issue was originally assigned to the full SAB, but Judy Weiss, Chairman of the SAB, requested that the Water Quality and Quantity Panel listen to the presentation since this is a water issue.

Tom Belton, Office of Science, gave a presentation on Nutrient Criteria Development Research in New Jersey. The purpose of this work is to link nutrients to a biological marker. This presentation is available on the SAB Water Quality Quantity Website.

Issue 3 - Demonstration of the Efficacy of Alternate Disinfectants in Concert with Innovative High Rate Solid Separating Technology

Stan Cach discussed the issue of Combined Sewer Overflow (CSOs). A pilot study is being developed to examine treatment of CSOs to remove pathogens. There are two main questions

A. What is the best way to remove solids
B. What type of disinfectant can be used

A copy of the presentation will be available of the Water Quality and Quantity SAB website.

Presentations on two other issues were postponed for later consideration.

1. Use of the Hydroecological Integrity Assessment Process in Determining the Stream Low Flow Margin Method
2. The use of Continuous Monitoring Data.